

AMESIODENDRON AND LITCHI (SAPINDACEAE): New Records for the Malay Peninsula

S. K. YAP

Forest Research Institute, Kepong, Malaysia

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Abstract

Two genera of Sapindaceae, previously not recorded for the Malay Peninsula, have been confirmed to occur in local forests. They are *Amesiodendron* and *Litchi*, each represented by one species.

Introduction

A total of 16 genera of the Sapindaceae were recognised as occurring in the Malay Peninsula by King (1893). Ridley (1922, 1925) added a further four genera, *Tristira* Radlk., *Curtisina* Ridl. *Napeodendron* Ridl. and *Phoenicimon* Ridl., with the last three described as new and monotypic. However, all these three genera were later reduced as *Curtisina penangensis* was proved to be conspecific with *Dacryodes longifolia* in Burseraceae (Lam, 1932), *Napeodendron altissimum* with *Walsura neuroides* in Meliaceae (Symington, 1937), and *Phoenicimon rubiginosus* as a species of *Glycosmis* of the Rutaceae (Leenhouts 1967).

In his monograph of the family, Radlkofer (1932) added two more genera for the Malay Peninsula, *Euphoria* Commers. and *Pseudonephelium* Radlk. Subsequently Leenhouts (1969) reduced *Aphania* Bl., *Erioglossum* Bl. and *Otophora* Bl. to *Lepisanthes* Bl. The two genera *Euphoria* and *Pseudonephelium* were reduced to *Dimocarpus* Lour. (Leenhouts, 1971) while *Tristira sensu* Ridley was later reduced to *Glenniea* Hook. f. (Leenhouts, 1975). A new record, *Ganophyllum falcatum* Bl. was added by Whitmore (1969) from a specimen collected from south-east Johore.

The present study documents a further two genera that have not been previously recorded for the Malay Peninsula viz. *Amesiodendron* Hu and *Litchi* Sonn. Each of the two genera is represented by one species in this region.

***Amesiodendron* Hu**

Amesiodendron chinense (Merr.) Hu, Bull. Fan Mem. Inst. Biol. Bot. 7 (1937) 207. Plates 1 & 2, Fig. 1

Basionym: *Paranephelium chinense* Merr., Lingnan Sci. J. 14 (1935) 30 & fig 10. Medium tree 20-30 m tall, 30-60 cm diameter; crown dense, spreading; bole fluted; bark brown to greenish brown, slightly dippled; inner bark red, laminated.

Twigs glabrous, lenticellate; leaves paripinnate, up to 20 cm long, with 4-6 pairs of alternate leaflets; leaflets 5-10 cm long, 1.5 cm wide, glabrous on both surfaces, with

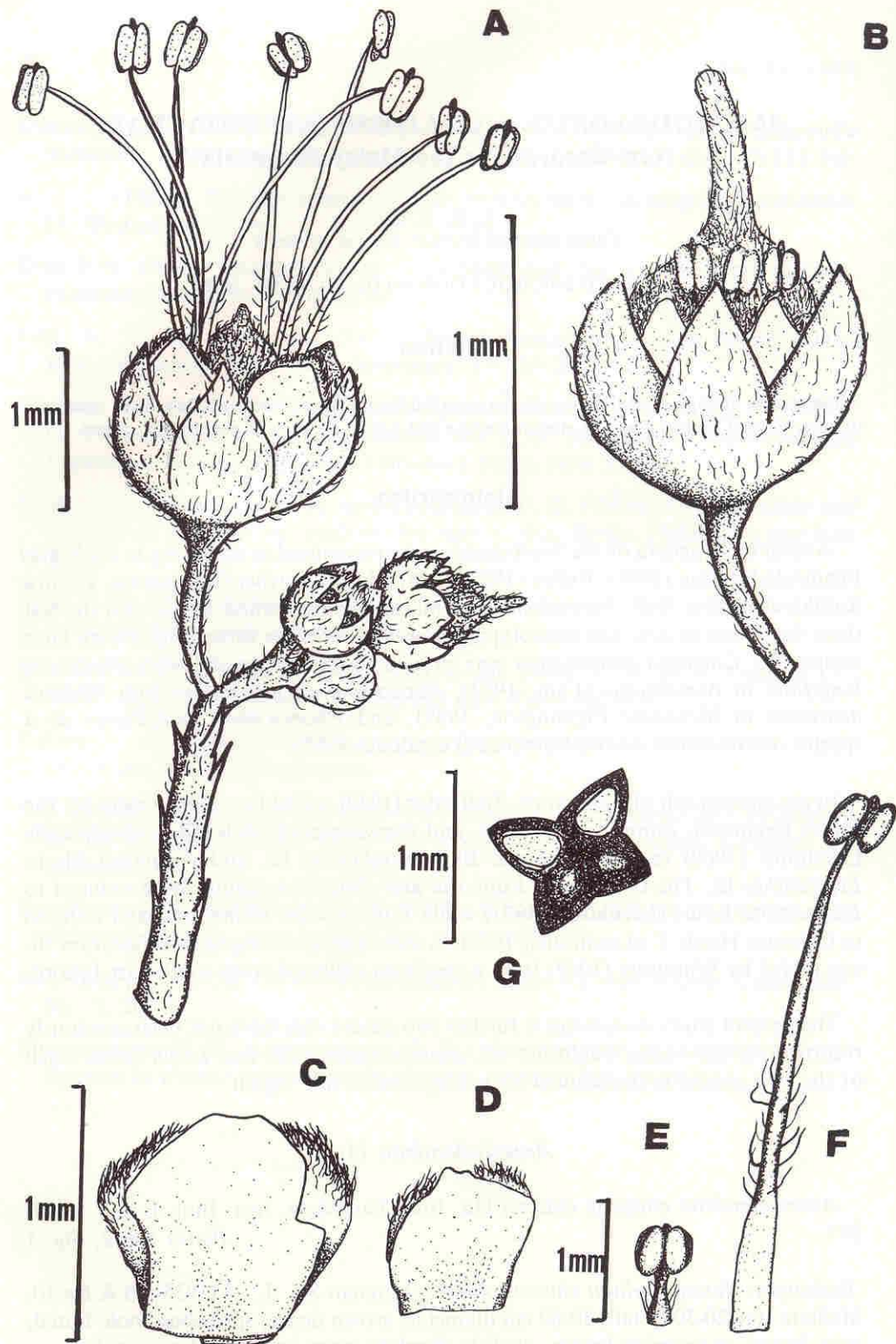


Fig. 1. Flowers of *Amesiodendron chinense* (Merr.) Hu — *a*: part of inflorescence with the male flower at anthesis; *b*: female flower; *c*: the bilobed petal of the male flower; *d*: the bilobed petal of the female flower; *e*: stamen of the female flower; *f*: stamen of the male flower; *g*: transverse section of the ovary.



Plate 1. Inflorescences of
Amesiodendron
chinense (Merr.) Hu.

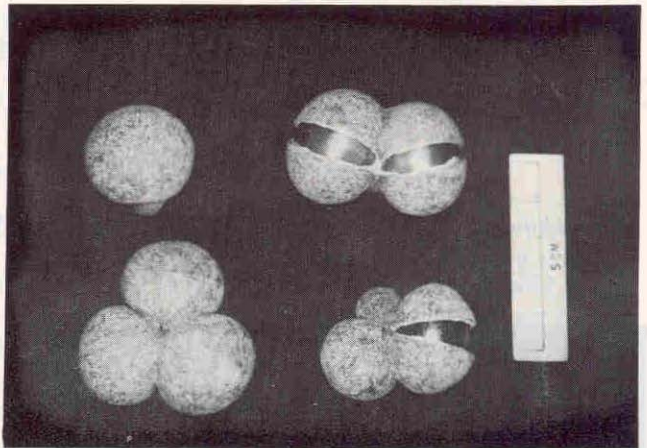


Plate 2. Fruits of *Amesiodendron*
chinense (Merr.) Hu.

toothed margin, pink when young, dull green when mature. Inflorescences paniculate, rather erect, terminal and axillary from the distal nodes, with both male and female flowers on the same panicle. Male flowers: sepals 5, valvate; petals 5, bilobed, outer lobe of each petal overlapping the feathery inner lobes; stamens 8(-9), inserted on a raised disc, filaments scantily hairy and exsert; anthers dorsifixed and extrorse. Female flowers: smaller than the male flowers, sepals 5; petals 5, bilobed as in the male flowers; stamen short, not exert from corolla; ovary hairy with 3(-4) locules; styles hairy. Nuts developing from 1 - 3 lobes of the ovary, usually hard, dark brown when ripe, dehiscent longitudinally into two; seeds smooth, hard and brown, 2 × 3 cm; germination hypogeal; seedling epicotyl with numerous scale-leaves; seedling leaves in spiral phylotaxy, each with 2 - 3 pairs of leaflets and a scale-like extension on the rachis tip.

The genus is distinct from others in the Malayan Sapindaceae by the combination of paripinnate leaves and serrate leaflet margins.

SPECIMENS EXAMINED:

Kedah: *Everett FRI 14145*, Gunong Bungsu Forest Res. (KEP! SING; SAN; K; L; A); *Kochummen KEP 98760*, Jitra, Bt. Bintang (KEP!)

Perak: *Whitmore FRI 15670*, Cameron Highlands Road, 18th milestone (KEP; SING; L); *Yap FRI 29392*, Cameron Highlands Road, 20th milestone (KEP!)

Selangor: *Kochummen FRI 16150*, Genting-Gombak Road (KEP!; SING; SAR; K; A), *Yap FRI 30656*, Gombak Forest Res. (KEP!)

Negri Sembilan: *Yap FRI 28488*, Kuala Kelawang (KEP!)

Pahang: *Burgess FRI 19370*, Lipis (KEP!); *Kochummen KEP 97776*, (KEP!), *FRI 2584*, Bentong (KEP! SING; K; L; A); *Whitmore FRI 229*, Bt. Tinggi (KEP! SING; K; L; A)

This species occurs in valleys of hill forests, at 300 - 400 m elevation. Observation on two individuals in the Gombak Forest Reserve, Selangor revealed that flowering and fruit formation extended over a period of about six months. Over 40% of the fruits were found to be viable.

Geographical distribution: Sumatra, Indo-China, Malay Peninsula and South China.

Litchi Sonn.

Litchi chinensis Sonn., Voy. Ind. Or. Chine 2 (1782) 230; Radlk., Pfl. R. Helft. 98 (1932) 914-921. Plate 3

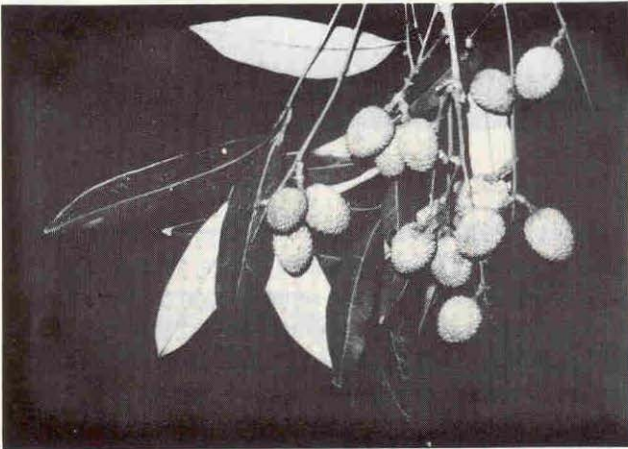


Plate 3. Inflorescence of
Litchi chinensis Sonn.

L. chinensis subsp. *chinensis*, Leenhouts (1978), Blumea 23: 395-403. Medium trees 25-30 m tall, 40-70 cm diameter; crown compact; inner bark orange. Leafy twigs up to 3 mm diameter. leaves paripinnate, 10-20 cm long, with 2-4 pairs of leaflets; rachis glabrous; leaflets stiffly held erect, coriaceous, glaucous below, 6-13 cm long, 2-3 cm wide, midveins distinct below and slightly sunken above, secondary veins inconspicuous, petiolules dark brown to black on drying. Inflorescences paniculate, terminal and axillary from distal nodes, rather erect, 8-18 cm long.

Fruits developing from one (rarely two) lobes of the ovary, globose 2.5×3 cm, indehiscent; pericarp leathery and muricate (warts up to 1 mm high); arillodes thin but succulent and easily detached; seed ovate with glossy black testa.

Germination hypogeal, seedling leaves paripinnate with one pair of leaflets and scale-like extension of the rachis tip, dull red and limp when young.

The stiffly held coriaceous leaflets that are glaucous underneath separate this genus from the other Malayan Sapindaceae.

SPECIMENS EXAMINED:

Kedah: Corner SFN 31543, Jitra (SING!; L) cultivated; *Taib KEP 105323*, Gunong Inas Forest Res., Kulim (KEP!); *Ghazali KEP 105272*, Gunong Inas Forest Res. (KEP!); *Othman KEP 74976*, Sik, Enggang Forest Res. (KEP!)

Penang: *Yap FRI 30652*, *FRI 30653*, Botanical Garden, Penang (KEP!) cultivated.

Perak: *Chan FRI 19124*, Gunong Bubu Forest Res. (KEP!); *Wyatt-Smith KEP 76728*, Dindings, Lumut Forest Reserve (KEP!)

Trengganu: *Mahirden KEP 79825*, 37th milestone, Jerangan, Dungun (KEP!)

Negri Sembilan: *Loh FRI 17092*, Tampin Forest Res. (KEP!; SING; K; L; A) *Yap FRI 30451*, Bt. Tampin (KEP!), *Yap FRI 30696*, Bt. Tampin (KEP!)

Selangor: *Motan & Sow KEP 52214*, Bt. Lagong (KEP!)

Leenhouts (1978) regarded the two species of *Litchi* recorded in Radlkofer (1932) as the same but recognised three subspecies viz. *chinensis*, *javensis* Leenh. and *philippinensis* (Radlk.) Leenh. Comparison with non Malayan specimens annotated by Leenhouts (at the Singapore Herbarium) confirmed that the Malayan specimens belonged to subsp. *chinensis*. In contrast to subsp. *chinensis*, subsp. *philippinensis* has fewer leaflets (2 pairs as opposed to 3 pairs) and has more pronounced warts on the fruit pericarp. The subsp. *javensis* has inflorescences with a few spike-like branches thus differing from the subsp. *chinensis*. In the Malay Peninsula, *L. chinensis* subsp. *chinensis* occurs on ridges of low hills up to 800 m elevation. With the wild form previously only recorded from Indo-China, the present records therefore extend the geographical range of this subspecies further south than was previously known.

Litchi chinensis is grown for its highly favoured fruits (popularly known as "lychee"). The introduction of *Litchi* trees to China is recorded as far back as 100 B.C. and extensive selection for the quality of the fruits has resulted in many cultivars. Three types of flowers are found on the cultivated lychee viz. male, hermaphrodite but functioning as male, and hermaphrodite but functioning as female. These flowers appear consecutively on the same panicle with a very gradual transition from one type to another (Mustard, Liu & Nelson, 1954). The same authors also indicated that a favourable range of temperature and humidity encourages fruit set. This may explain the rarity of flowers and fruits on the cultivated lychee tree in the Malay Peninsula. The discovery of indigenous *Litchi chinensis* in the forests of the Malay Peninsula has important implications for the potential cultivation of this species.

Geographical distribution: Indo China and Malay Peninsula but widely cultivated in subtropical countries.

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